

Notes on the Orthopteroid Insects of the Fiji Islands.

BY LAWRENCE BRUNER.

(Presented by O. H. Swezey.)

INTRODUCTION.

During the latter part of 1913 the compiler of these notes had the pleasure of visiting the entomologists of Hawaii in Honolulu. While there the subject of orthopteroid insects naturally came up for discussion along with other matters entomological. Among the specimens examined were a number of Orthoptera from the Fiji Islands. Most of these were brought along to the University of Nebraska to be studied. Later a second collection of these insects taken in the same islands was received from Professor J. F. Illingworth of the College of Hawaii.

In studying this material a list of these insects for the group of islands was prepared as a basis for the determinations of the forms in hand. Several new forms were found among the collections studied and their descriptions are given herewith. In this paper the Isoptera or termites are not included.

BLATTOIDEA.

Allacta spuria (Brunner).

Phyllodromia spuria Brunn., Nouv. Syst. Blatt. p. 96 (1865); Kirby Syn. Cat. Orth., I, p. 93 (1904).

Allacta spuria Shelford, Genera Ins. Fase. 73, p. 18, pl. 2, fig. 7 (1908). For additional synonymy see Shelford, l. c.

Not found in the collections seen, but originally described from the Fiji Islands.

Phyllodromia vitrea Brunner.

Phyllodromia vitrea Brunn., Nouv. Syst. Blatt. p. 109, No. 28 (1865); Kirby, Syn. Cat. Orth. I, p. 95 (1904); Shelford, Genera Ins. Fase. 73, p. 15 (1908).

Blatta vitrea Sauss., Miss. Mex., Orth. p. 30, pl. 1, fig. 18 (1870).

Blatta dilatata ♂, Sauss., Rev. Zool. (2) XX, p. 98 (1868).

A specimen in the collection of the College of Hawaii comes from Nadi, where it was taken in August, 1913.

Phyllodromia germanica (Linnaeus).

Blatta germanica Linn., Syst. Nat. (ed. XII) I, (2) p. 668, No. 7 (1767).

Blatta obliquata Daldorf, Skriv. Nat. Selsk. Vol. 2 (2), p. 164 (1793).

Ectobius germanica Steph., Ill. Brit. Ent., Mand. VI, p. 46 (1835).

For additional synonymy see Shelford, Genera Ins. Fase. 73, p. 11, and Kirby, Syn. Cat. Orth. I, p. 87.

This insect is cosmopolitan and occurs in all temperate and tropical seaports, as well as in most inland cities and towns, where it has been carried by commerce. Possibly too common to have been taken.

Phyllodromia bivittata (Serville).

Blatta bivittata Serv., Hist. Ins. Orth. p. 108 (1839).

Phyllodromia bivittata Sauss., Miss. Mex. Orth. p. 28 (1870); Kirby, Syn. Cat. Orth. I, p. 87 (1904); Shelford, Genera Ins. Fase. 73, p. 11 (1908).

The two-lined cockroach, like the preceding, is very widely distributed over the warmer portions of the earth, where it has been carried by commerce. The same remarks might be made of this as of the preceding species.

Phyllodromia suppellectilum (Serville).

Blatta suppellectilum Serv., Hist. Ins. Orth. p. 108 (1839).

For a rather full synonymy of this species see Shelford, Genera Ins. Fase. 73, p. 11 (1908).

This is still another of the cosmopolitan species that occurs in all seaports of tropical and subtropical countries. See remarks regarding *germanica* and *bivittata*.

Phyllodromia rufescens (Beauvois).

Blatta rufescens Beauv., Ins. Afr. Amer. p. 183, Orth. pl. 1b, f. 7 (1805).

For synonymy see Kirby, Syn. Cat. Orth. I, p. 82, and Shelford, Genera Ins. Fase. 73, p. 11.

Still a fourth cosmopolitan species of the genus *Phyllodromia* is to be met with in these islands. While not represented in the collection studied, it certainly occurs in the Fijis.

Phyllodromia notulata (Stål).

Blatta notulata Stål, Freg. Eugen. Resa, Ent. p. 308 (1858).

Allacta notulata Kirby, Syn. Cat. Orth. I, p. 100 (1904).

Phyllodromia notulata Shelford, Genera Ins. Fase. 73, p. 13 (1908).

Phyllodromia hieroglyphica Brunn., Nouv. Syst. Blatt. p. 105 (1865).

There are specimens in the collection of the College of Hawaii taken at Nadi during the month of June, 1913.

Temnopteryx ferruginea sp. nov.

Rather small, ferrugineo-piceous with a testaceous border on the sides of the pronotum and abdomen, legs also testaceous with prominent piceous maculae on coxae, femora and tibiae. Tegmina and wings abbreviated, the former obliquely truncated internally at apex, their inner margins touching; wings narrow, sublinear, as long as the tegmina. Dorsum and venter becoming piceous at outer margins and adjoining the narrow testaceous border. Spines of legs piceous at their base. Head ferruginous, paler on the vertex, the clypeus testaceous; maxillae testaceous, the apical joint infuscated; antennae also somewhat infuscated.

Length of body, ♀, 10 mm.; of pronotum, 2.85 mm.; width of pronotum, 4 mm.; length of tegmina, 3 mm.

Habitat.—A single female, the type, comes from Rewa, Fiji (Muir, 1906).

Cutilia nitida (Brummer).

Platzosteria nitida Brunner, Nouv. Syst. Blatt. p. 214 (1865).

Cutilia nitida Shelford, Genera Ins. Fasc. 109, p. 8 (1910).

For synonymy see Shelford, l. c.

Habitat.—Malay Archipel. etc.; Suva, Fiji, Aug. 25, 1913 (College of Hawaii). These specimens were collected from cocoanut leaf sheaths.

***Cutilia feejeeana* sp. nov.**

A single ♀ specimen of a second and rather closely related species of "Cutilia" is at hand. The color of this insect is a deep piceo-ferruginous and in form it is somewhat broader than the preceding. Its length is 23 mm., its greatest width 16 mm., length of pronotum 7.5 mm., width of hind margin of pronotum 15 mm., length of hind tibiae 10.75 mm.

Habitat.—Rewa, Fiji (Muir, 1906). Type in the collection of L. Brunner.

***Stylopyga rhombifolia* (Stoll).**

Blatta rhombifolia Stoll, Spectres, Blatt. p. 5, pl. 3d, fig. 13 (1813).

For synonymy see Shelford, Genera Ins. Fasc. 109, p. 14, and Kirby, Syn. Cat. Orth. I, p. 135 (1904).

This is a cosmopolitan insect that is very widely disseminated thruout the Oriental region. It is especially common in the islands of the Pacific. It should be found in the principal seaports of the Fijis.

***Blatta orientalis* Linnaeus.**

Blatta orientalis Linn., Syst. Nat. (ed. X) I, p. 424, No. 7 (1758).

For synonymy see Kirby, Syn. Cat. Orth. I, p. 137 (1904).

Found about the wharves, in dwelling houses, hotels, business blocks, etc., thruout the civilized world; also to some extent out-of-doors in the tropical forests. No specimens are at hand, possibly because of its being too common and well known.

***Blatta rotundata* (Brunner).**

Periplaneta rotundata Brunn., Nouv. Syst. Blatt. p. 230 (1865).

This moderately large insect appears to be confined entirely to the Fiji Islands. No specimens are at hand. Hence it would seem either to be rare or else confined to the jungles or some special haunts away from human habitations.

Periplaneta americana (Linnaeus).

Blatta americana Linn., Syst. Nat. (ed. X) I, p. 424, No. 4 (1758).

For synonymy see Kirby, Syn. Cat. Orth. I, p. 140, and Shelford, Genera Ins. Fase. 109, p. 18.

A cosmopolitan cockroach that occurs both about buildings and in the forests. A single specimen taken at Nadi during the month of July is classed here. It is contained in the College of Hawaii collection.

Periplaneta australasia (Fabricius).

Blatta australasia Fabr., Syst. Ent. p. 271, No. 5 (1775).

For synonymy see Kirby and Shelford, l. c.

A cosmopolitan species of the forests rather than of the cities, but by no means absent from the latter locality. Reported from the Fijis, but not present in the collections examined.

Diploptera dytiscoides (Serville).

Blatta dytiscoides Serv., Hist. Ins. Orth. p. 102 (1839).

For synonymy see Kirby, Syn. Cat. Orth. I, p. 176 (1904).

Habitat.—Quite general over the Oriental region. Muir collected it at Rewa, Fiji, in 1906.

Several other cosmopolitan roaches undoubtedly are to be met with in these islands, as for example *Leucophoea surinameensis* (Linn.), *Rhyparobia maderae* (Fabr.) and *Nauphoeta cinerea* (Oliv.), all of which are common in adjoining islands.

PHASMOIDEA.

Pterobrimus depressus Redtenbacher.

Pterobrimus depressus Redt., Ins. Fam. Phasm. p. 43 (1906).

Habitat.—Fidji-Inseln (Coll. Redt. and Mus. Hamburg). Not in the collection studied.

Chitoniscus lobipes Redtenbacher.

Chitoniscus lobipes Redt., Ins. Fam. Phasm. p. 178, pl. VI, fig. 15 (1906).

Habitat.—Viti, Fidschi-Inseln (Coll. Redt.). This insect is likewise absent from the various collections examined by me.

Chitoniscus lobiventris (Blanchard).

Phyllium lobiventre Blanch., Voy. Pole Sud. Zool. IV, p. 359, Orth. pl. I, fig. 9 ♂ (1853); Westw. Cat. Phasm. p. 174, pl. 39, fig. 5 ♀ (1859).

Chitoniscus lobiventris Stål, Recens. Orth. III, p. 105 (1875); Redt., Ins. Fam. Phasm. p. 179 (1906).

Habitat.—Fiji Isls. (Mus. Hamburg, Mus. Paris, etc.). Not among the specimens now studied.

Chitoniscus feejeeanus (Westwood).

Phyllium feejeeanum West., Proc. Ent. Soc. Lond. (3) II, p. 17 (1864).

Chitoniscus feejeeanus Kirby, Syn. Cat. Orth. I, p. 420 (1904).

Habitat.—A single ♀ specimen of this Fijian insect is at hand. It was taken at Suva in August, 1913, (College of Hawaii).

Nisyrus spinulosus Stål.

Nisyrus spinulosus Stål, C. R. Soc. Ent. Belg. XX, p. lxvi (1877); Brunn., Fam. Phasm. pp. 359, 360, pl. XVI, fig. 13 (1908).

Habitat.—Viti-Inseln (Coll. Brunner, Mus. Hamburg, Mus. Berlin, Mus. Stuttgart). Absent from the Fiji material at hand.

Nisyrus dipneusticus (Wood-Mason).

Cotylosoma dipneusticum Wood-Mason, Ann. Mag. Nat. Hist. (5) I, p. 101 (1878); Waterhouse, Ann. Nat. Hist. XV, p. 498 (1895).

Habitat.—The only reference to this insect's habitat is Tavuni, Viti-Inseln (Mus. Hamburg).

Nisyrus amphibius Stål.

Nisyrus amphibius Stål, C. R. Soc. Ent. Belg. XX, p. lxvii (1877); Brunn., Fam. Phasm. p. 360 (1908).
Habitat.—Viti-Inseln (Mus. Hamburg).

Nisyrus carlottae (MacGillivray).

Prisopus carlottae MacGill., Zoologist, XVIII, p. 714 (1860); Brunn., Fam. Phasm. p. 361 (1908).
Habitat.—Viti-Inseln (Mus. Hamburg).

Megacrania phelaus (Westwood).

Platycrania phelaus Westw., Cat. Phasm. p. 113, pl. 27, fig. 5 ♀ (1859); Kirby, Trans. Linn. Soc. Lond. (2) vi, p. 470 (1896).

Megacrania phelaus Kanp., Berl. Ent. Zeitschr. XV, p. 38 (1871); Brunn., Fam. Phasm. p. 370 (1908).
Habitat.—Fidschi-Inseln (Westw.).

Graeffea coccophagus (Newport).

Alophus coccophagus Newp., Phil. Trans. 1844, p. 288, pl. 14, fig. 4.

Lopaphus coccophagus Westw., Cat. Phasm. p. 99 (1859).

Graeffea purpuripennis Brunn., Dr. Graeffes Reisen in Viti-Levu, figs. 1 ♂, 2 ♀ (1868).

Anophelepis fulvescens Sauss., Rev. et Mag. d. Zool. 1869, p. 4; lb. Mel. Orth. III, p. 117, pl. 2, figs. 3, 4 (1869).

Habitat.—Australasia. There are 2 female specimens at hand from Rewa (Muir in April); also a couple from Suva taken in August, 1913 (Coll. College of Hawaii).

Graeffea lifuensis Sharp.

Graeffea lifuensis Sharp, Acc. of Phasm. in Willey-Zool. Results, p. 80, pl. 9, fig. 21 (1898); Redt., Ins. Fam. Phasm. p. 371 (1908).

Habitat.—Two females and a male of what is apparently this insect are at hand from Suva, where they were collected in August, 1913 (College of Hawaii).

Graeffea minor Brunner.

Graeffea minor Brunn., Dr. Graeffes Reisen in Viti Levu, p. 47 (1868); Kirby, Syn. Cat. Orth. p. 386 (1904).

Habitat.—Fiji Islands (Coll. Brunner, Mus. Hamburg).

Podacanthus typhon Gray.

Podacanthus typhon Gray, Ent. Austr. I, pl. 2, fig. 1 (1833); Serv., Hist. Ins. Orth. p. 230 (1839); Burn., Handb. Ent. II, p. 581 (1838); Westw., Cat. Phasm. p. 117 (1859).

Habitat.—Fidschi-Inseln (Coll. Brunner).

Hermarchus differens Redtenbacher.

Hermarchus differens Redt., Fam. Phasm. p. 445 (1908).
Habitat.—Viti (Mus. Paris).

Hermarchus appolonius (Westwood).

Phibalosoma appolonius Westw., Cat. Phasm. p. 181, pl. 40, fig. 4 ♀ (1859).

Phibalosoma pythouins Westw., Cat. Phasm. p. 73, pl. 35, fig. 3 ♂.

Hermarchus pythonius Stål, Recens. Orth. III, p. 89.

Habitat.—Fiji Islands. A single ♂ from Suva, taken in August, 1913, is referred here (College of Hawaii).

Hermarchus pythonius (Westwood).

Phibalosoma pythonius Westw., Cat. Phasm. p. 73, pl. 12, fig. 1 ♀ (1859).

Hermarchus pythonius Stål, Recens. Orth. III, p. 89 (1875); Brunn., Fam. Phasm. p. 446.

Habitat.—Fidschi-Inseln (Coll. Brunner, Mus. Paris, Mus. Hamburg, Hofmus. Wien).

Hermarchus virga Redtenbacher.

Hermarchus virga Redt., Fam. Phasm. p. 446 (1908).

Phyalosoma pythonius var. Westw., Cat. Phasm. p. 73 (1859).

Habitat.—Fidschi-Inseln (Coll. Brunner, Mus. Paris).

Hermarchus novae-britanniae (Wood-Mason).

Phyllium novae-britanniae Wood-Mason, Ann. Mag. Nat. Hist. (4) XX, p. 76 ♀ (1877).

Hermarchus novae-britanniae Brunn., Fam. Phasm. p. 447, pl. XXI, fig. 6 (1908).

Habitat.—Fidschi-Inseln (Coll. Brunner, Mus. Genf, Mus. Hamburg, Mus. Paris, Mus. Berlin).

Hermarchus inermis Redtenbacher.

Hermarchus inermis Redt., Fam. Phasm. p. 448, pl. XXI, fig. 5 (1908).

Habitat.—Fidschi-Inseln (Coll. Brunner, Mus. Hamburg, Mus. Stuttgart).

Acrophylla chronus (Gray).

Diura chronus Gray, Ent. Australia, pp. 20, 26, pl. 5, fig. 2 (1833).

For synonymy see Brunner and Redt., Fam. Phasm. p. 457.

Habitat.—Fidschi-Inseln (Coll. Brunner).

MANTOIDEA.

Hierodula fuscescens (Blanchard).

Mantis fuscescens Blanch., Voy. Pole Sud. Zool. IV, p. 354, pl. i, fig. 5 (1853).

Habitat.—Although recorded as belonging to these islands, it is not contained in the material examined.

Undoubtedly several other mantids will be found to occur in these islands.

LOCUSTOIDEA.

Thyrsus tiaratus Bolivar.

Thyrsus tiaratus Bolivar, Ann. Soc. Ent. Belg. XXXI, pp. 187, 254, pl. 5, fig. 21 (1887); Hancock, Genera Ins. Orth. Acrid. Tetr. Fase. 48 p. 50, fig. 19 (1906).

Habitat.—Although confined to the Fiji Islands, this species is not represented among the forms studied.

Paratettix pullus Bolivar.

Paratettix pullus Bolivar, Ann. Soc. Ent. Belg. XXXI, pp. 188, 272, 281 (1887).

Habitat.—Two specimens are at hand from Rewa (Muir, 1906).

Paratettix feejeeanus sp. nov.

Decidedly smaller than *P. pullus*, from which it differs in having the pronotum and wings much abbreviated and scarcely reaching the apex of the hind femora and tip of the valves of the ovipositor in the females; in the males only about as long as the abdomen. Color variable, mostly testaceous, more or less variegated with fuscous.

Length of body, ♂, 5.5 mm., ♀, 7.5 mm.; of pronotum, ♂, 5.75 mm., ♀, 6 mm.; of hind femora, ♂ and ♀, 4.25 mm.

Habitat.—This insect was taken at Rewa in April, 1906, by Muir; and at Nausori during June and July, 1913 (Coll. College of Hawaii). Types in the collection of L. Bruner.

Aeolopus tamulus (Fabricius).

Gryllus tamulus Fabr., Ent. Syst., Suppl. p. 195 (1798).

For synonymy see Kirby, Syn. Cat. Orth. III, p. 192.

Habitat.—This insect is widely distributed in the Oriental region. Specimens of both sexes are at hand from Nadi, where they were taken in June, 1913 (College of Hawaii).

Locusta australis (Saussure).

Pachytalus australis Sauss., Mem. Soc. Geneve, XXVIII, pp. 51, 118 (1884).

Locusta australis Fogg., Agric. Gaz. N. S. Wales, XIV, p. 1106 (1903); Kirby, Syn. Cat. Orth. III, p. 229 (1910).

Habitat.—Three males and 2 females were taken at Rewa by Muir in April 1906, and 2 pairs are labelled Nadi, June, 1913 (College of Hawaii).

Oedipoda (?) liturata Le Guili.

Oedipoda liturata Le Guili, Rev. Zool. 1841, p. 295.

See Kirby, Syn. Cat. Orth. III, p. 242.

Habitat.—An insect under the above name is referred to in Fiji. It is not contained in the collections investigated.

Cyrtacanthacris vittaticollis (Stål)?

Acriidium vittaticolle Stål, Oefv., Vet. Akad. Forh. XXXIV (10), p. 53 (1877); Finot, Sur. Genre Acriidium, p. 73 (1907).

Habitat.—The above named insect is native in the Philippines. A pair of specimens referred here with some doubt bear the locality label "Nadi," where they were taken in June, 1913 (Coll. College of Hawaii).

Cyrtacanthacris sp.

A second and considerably larger species of this genus coming from the same locality, is also at hand. It is a female, and was also taken during the month of June and is contained in the College of Hawaii collections. This latter insect may be new. It resembles quite closely the large *Schistocera americana* and allies. It might bear the name temporarily of *Cyrt. feejeeana*. Its dimensions are as follows: Length of body, ♀, 56 mm.; of pronotum, 11 mm.; of tegmina, 57 mm.; of hind femora, 34 mm.

Undoubtedly still other species of locusts or short-horned grasshoppers occur in these islands.

TETTIGONOIDEA.

Gryllacris dubia Le Guill.

Gryllacris dubia Le Guill, Rev. Zool. 1841, p. 293; Kirby, Syn. Cat. Orth. II, p. 145 (1906).

Habitat.—This insect, while reported from Fiji, is not among the material examined by me.

Gryllacris ferruginea Brunner.

Gryllacris ferruginea Brunn., Verh. Zool.-bot. Ges. Wien, XXXVIII, pp. 316, 317 (1888); Kirby, Syn. Cat. Orth. II, p. 146 (1906).

Habitat.—Nausori, Aug. 29, 1913 (College of Hawaii), and Rewa (Muir, 1906).

Euconocephalus australis (Bolívar).

Conocephalus australis Bol., Viaje al Pacif., Ins. p. 90
note (1884).

Habitat.—Specimens of this insect are present from Rewa (Muir) and Nadi (College of Hawaii). Kirby claims that it is the same as the *Conocephalus extensor* of Walker (see Syn. Cat. Orth. II, p. 250).

Euconocephalus lineatipes (Bolívar).

Conocephalus lineatipes Bol., Ortopt. Afr. Mus. Lisboa, p. 225 (1890); Redt., Mon. Conocephal. p. 95.

Habitat.—Fidji-Inseln (Redt.). Specimens from Rewa collected by Muir in 1906 are also referred here.

Salomona antennata Redtenbacher.

Agroecia rugifrons Redt., Mon. Conocephal. pp. 156, 157 (1891); Karny, Revis. Conocephal. p. 73 (1907).

Habitat.—Viti Levu, Fidji-Inseln (Walker, Brunner, Mus. Hamburg). Not contained among the material at hand.

Salomona antennata Redtenbacher.

Salomona antennata Redt., Monog. Conocephal. pp. 156, 158 (1891); Kirby, Syn. Cat. Orth. II, p. 265 (1906); Karny, Revis. Conocephal. p. 73 (1907).

Habitat.—Viti-Levu, Fidji-Inseln (Coll. Brunner). Not among the material at hand.

Salomona brongniarti Brunner.

Salomona brongniarti Brunn., Abhandl. Senekenb. Ges. XXIV, p. 270 (1898); Kirby, Syn. Cat. Orth. II, p. 265 (1906).

Habitat.—Fiji Islands. Not present in the collections studied.

Xiphidion modestum (Redtenbacher).

Xiphidium modestum Redt., Mon. Conocephal. pp. 182, 196 (1891).

Anisoptera modestum Kirby, Syn. Cat. Orth. II, p. 277 (1906).

Xiphidion modestum Karny, Revis. Conocephal. p. 91 (1907).

Habitat.—Quite generally distributed in the Oceanic islands. Fidji-Inseln (Coll. Brunner, Mus. Geneva). Not in the material at hand.

Xiphidion affine (Redtenbacher).

Xiphidium affine Redt., Monog. Conocephal. pp. 183, 199 (1891).

Anisoptera affine Kirby, l. c. p. 278 (1906).

Habitat.—Fiji Islands. Specimens are at hand from Rewa (Muir, Meh. and April, 1906), and Nadi (June, 1913, Coll. College of Hawaii).

Phisis echinata (Redtenbacher).

Teuthras echinatus Redt., Monog. Conocephal. p. 226, fig. 96 (1891).

Phisis echinata Kirby, Syn. Cat. Orth. II, p. 286 (1906); Karny, Revis. Conocephal. p. 104 (1907).

Habitat.—Fidji-Inseln (Coll. Brunner). Missing from the collections before me.

Phisis rapax (Redtenbacher).

Teuthras rapax Redt., Monog. Conocephal. pp. 226, 227 (1891).

Phisis rapax Kirby, l. c. p. 104 (1907).

Habitat.—Fidji-Inseln (Coll. Brunner). Not in the collections at hand.

Hexacentris australis Redtenbacher.

Hexacentris australis Redt., Monog. Conocephal. pp. 234, 236 (1891); Kirby, l. c. p. 287 (1906); Karny, l. c. p. 107 (1907).

Habitat.—Specimens of this insect were taken at Rewa in March, 1906, by Muir.

Morisimus oceanicus (Pictet et Saussure).

Tympanoptera oceanica Pict. et Sauss., Icon. Saut. Vertes, p. 20, pl. 2, fig. 12 (1892).

Aprion oceanicus Brunn., Mon. Pseudophyll. pp. 74, 78, pl. 3 fig. 31 (1895).

Morisimus oceanicus Kirby, Syn. Cat. Orth. II, p. 305 (1906).

Habitat.—Fiji. Not in any of the collections studied.

Ocica lutescens Walker.

Ocica lutescens Walker, Cat. Derm. Salt. B. M. II, p. 246 (1869); Kirby, Syn. Cat. Orth. II, p. 357 (1906).

Habitat.—This insect is recorded only from the Fiji Islands. None are in the collections studied.

Diaphlebus bivittatus Redtenbacher.

Diaphlebus bivittatus Redt., Verh. Zool.-bot. Ges. Wien. XLII, p. 193 (1892).

Habitat.—This and the following three species of the genus are all described from the Fiji Islands. None of them are represented.

Diaphlebus marmoratus Redtenbacher.

Diaphlebus marmoratus Redt., l. c. pp. 193, 194, pl. 3, fig. 2 (1892); Kirby, Syn. Cat. Orth. II, p. 357 (1906).

Habitat.—Fiji (Coll. Brunner).

Diaphlebus brevivaginatus Karsch.

Diaphlebus brevivaginatus Karsch, Berl. Ent. Zeitschr. XXXVI, p. 343 note (1892).

Habitat.—Fiji Islands.

Diaphlebus (?) uniformis Brunner.

Diaphlebus (?) uniformis Brunn., Abhandl. Senckenb. Ges. XXIV, p. 257 (1898); Kirby, Syn. Cat. Orth. II, p. 357 (1906).

Habitat.—Fiji Islands.

Elaeoptera nitida Redtenbacher.

Elaeoptera nitida Redt., Verh. Zool.-bot. Ges. Wien, XLII, p. 196 (1892); Kirby, l. c. II, p. 358 (1906).

Habitat.—Fiji Islands. Not represented.

Elaeoptera lineata Redtenbacher.

Elaeoptera lineata Redt., l. c. p. 196, pl. 3, fig. 3 (1892); Kirby, l. c. p. 358 (1906).

Habitat.—Fiji. Likewise absent from these collections examined.

Ityocephala nigrostrigata (Walker).

Pseudophyllus nigrostrigatus Walker, Cat. Derm. Salt. B. M. V. Suppl. p. 44 (1871).

Ityocephala nigrostrigata Redt., Verh. Zool.-bot. Ges. Wien, XLII, p. 22, pl. 3, fig. 11 a, b (1892).

Habitat.—Fiji (Coll. Brunner). Not in the material studied.

Furnia insularis Stål.

Furnia insularis Stål, Bihang. Svenska Akad. IV, p. 57 (1876); Kirby, Syn. Cat. Orth. II, p. 468 (1906).

Anaulacomera insularis Brunn., Mon. Phaneropt. pp. 280, 295 (1878).

Habitat.—Two ♀ ♀ and a nymph are referred here (Muir, Mech. 1906).

Furnia incerta (Brunner).

Anaulacomera incerta Brunn., Mon. Phaneropt. pp. 280, 295, pl. 6, fig. 85 a-e (1878).

Furnia incerta Kirby, Syn. Cat. Orth. II, p. 468 (1906).

Habitat.—Fiji (Brunner, Kirby).

Furnia malaya Stål (?)

Furnia malaya Stål, Bihang Svenska Akad. IV (5), p. 57 (1876).

Anaulacomera malaya Brunn., l. c. pp. 280, 295 (1878).

Habitat.—Two specimens, ♂ and ♀, taken at Rewa in March, 1906, by Muir are referred here.

GRYLLOTALPOIDEA.

Curtilla africana (Beauvois).

Gryllotalpa africana Beauv., Ins. Afr. Amer. p. 229, pl. 2 c, fig. 6 (1805).

Gryllotalpa orientalis Burm., Handb. Ent. II, p. 739 (1838).

Curtilla africana Kirby, Syn. Cat. Orth. II, p. 6 (1906).

This insect seems to be generally distributed throughout Australasia. Although no specimens are at hand, it most certainly will be found to occur in the Fiji Islands.

GRYLLOIDEA.

Nemobius luzonicus Bolivar.

Nemobius luzonicus Bol., Ann. Soc. Esp. XVIII, p. 418 (1889); Kirby, Syn. Cat. Orth. II, p. 16 (1906).

Habitat.—Two ♀ specimens of *Nemobius* are referred to Bolivar's *N. luzonicus*, although they do not agree in all respects with his description. They come from Nansori, where they were taken in June and July, 1913 (College of Hawaii).

Apiotarsus gryllacroides Saussure.

Apiotarsus gryllacroides Sauss., Mem. Soc. Geneve, XX, p. 105, pl. 14 (XXIII), figs. 1-7 (1877); Kirby, Syn. Cat. Orth. II, p. 20 (1906).

Habitat.—Fiji Islands. Not in the material now examined.

Gryllus oceanicus Le Guill.

Gryllus oceanicus Le Guill., Rev. Zool. 1841, p. 293; Kirby, Syn. Cat. Orth. II, p. 33 (1906).

Gryllus imnotabilis Walker, Cat. Derm. Salt. B. M. I, p. 47 (1869); Sauss., Mem. Soc. Geneve, XXV, p. 158 (1877).

Habitat.—Fiji Islands: Rewa (Muir); Suva, Aug. 1913 (Mus. College of Hawaii). This insect also is quite widely distributed in the various islands of the Pacific.

Ornebius novarae (Sassure)?

Liphoplus novariae Sauss., Mem. Soc. Geneve, XXV, p. 315 (1877).

Ornebius novarae Kirby, Syn. Cat. Orth. II, p. 58 (1906).

Habitat.—A ♂ specimen collected by Muir at Rewa during April, 1906, is referred here with some doubt.

Ornebius sp.

Habitat.—A ♂ specimen of a second species of the genus not yet determined was also taken at Lautoka in June, 1913 (College of Hawaii).

Arachnocephalus maritimus Saussure.

Arachnocephalus maritimus Sauss., Mem. Soc. Geneve, XX, p. 313 (1877); Kirby, Syn. Cat. Orth. II, p. 60 (1905).

Habitat.—Oceanica; Fiji Islands. Not at hand now.

Oecanthus rufescens Serville.

Oecanthus rufescens Serv., Hist. Ins. Orth. p. 361 (1839); Sauss., Mem. Soc. Geneve, XXV, p. 456 (1878).

Gryllus (Oecanthus) gracilis Haan, Temmick, Verhandel., Orth. p. 236, pl. 20, fig. 8 (1842).

Habitat.—Oriental region, including Fiji, but not represented in the material studied.

Oecanthus lineatus Walker.

Oecanthus lineatus Walker, Cat. Derm. Salt. B. M. I, p. 96 (1869); Sauss., Mem. Soc. Geneve, XXV, p. 455 (1877); Kirby, Syn. Cat. Orth. II, p. 74 (1906).

Habitat.—Specimens of this species are at hand from Nadi, Lautoka and Rewa.

Trigonidium flavipes Saussure.

Trigonidium flavipes Sauss., Mem. Soc. Geneve, XXV, p. 465, pl. 16 (XLVII), fig. 2i, e, pl. 19 (LXXX), fig. 1 (1878); Kirby l. c. p. 78 (1906).

Habitat.—Muir collected this insect at Rewa in 1906.

Metioche insularis (Saussure).

Homoxiphoides insularis Sauss., Mem. Soc. Geneve, XXV, p. 470 (1878).

Metioche insularis Kirby, Syn. Cat. Orth. II, p. 79 (1906).

Habitat.—Specimens of this small cricket are present from Nadi and Nausori, taken in June, 1913 (College of Hawaii), and from Rewa, 1906 (Muir).

Cyrtotrix maritima (Saussure).

Cyrtotrix maritima Sauss., Mem. Soc. Geneve, XXV, p. 478, pl. 17 (XLIX), fig. 3, pl. 19 (LXXIX), fig. 3 (1878).

Habitat.—Fiji is among the islands listed as the habitat of this insect.

Cyrtoxiphia fulva (Saussure).

Cyrtoxiphus fulvus Sauss., Mem. Soc. Geneve, XXV, p. 481, pl. 17 (XLIX), fig. 5 (1878).

Cyrtoxiphia fulva Kirby, Syn. Cat. Orth. II, p. 82 (1906).

Habitat.—Fiji. Not in the material being studied.

Cyrtoxiphia straminea (Saussure).

Cyrtoxiphus stramineus Sauss., Mem. Soc. Geneve, XXV, p. 482 (1878).

Habitat.—Credited to Fiji, but not among the specimens at hand now.

Hydropedeticus vitiensis Mial and Gils.

Hydropedeticus vitiensis Mial and Gils., Trans. Ent. Soc. Lond. 1902, p. 284, pls. 7, 8 (1902).

Habitat.—The present species is confined to the Fiji Islands. It is aquatic in its habits, as are some of the neotropical representatives of *Nemobius*.

Cardiodactylus novae-guineae (de Haan).

Gryllus (Platydactylus) norae-guineae Haan, Temminck, Verhandl. Orth. p. 233 (1842).

Cardiodactylus norae-guineae Sauss., Mem. Soc. Geneve, XXV, p. 519, pl. 17 (LV), f. 1 (1878); Kirby, Syn. Cat. Orth. II, p. 88 (1906).

Habitat.—Quite generally distributed over Australasia. A single ♂ was collected at Rewa, Fiji, in 1906 by Muir.

Heterotrypus tripartitus Saussure.

Heterotrypus tripartitus Sauss., Mem. Soc. Geneve, XXV, p. 548 (1878); Kirby, Syn. Cat. Orth. II, p. 91 (1906).

Habitat.—This is another small gryllid that seems to be confined to the Fiji group of islands. It is not in the collections now being reported upon.

Mnesibulus bicolor (De Haan)?

Gryllus (Phalangopsis) bicolor De Haan, Temminck, Verhandel. Orth. p. 235 (1842).

Calyptotrypus bicolor Sauss., Mem. Soc. Geneve, XXV, p. 587 (1878).

Mnesibulus bicolor Bolivar, An. Soc. Esp. Hist. Nat., XVIII, p. 427 (1889); Kirby, Syn. Cat. Orth. II, p. 95 (1906).

Habitat.—A single ♀ cricket collected in 1906 by Muir is referred here with considerable doubt. Its ovipositor is fully as long as the hind femora, a character that does not agree with Saussure's measurement for *bicolor*. It may be new, but if so is quite nearly related to *bicolor*.

Mnesibulus (?) sp.

A second but much smaller species of this or a closely related genus is contained in material collected by Muir at Rewa in 1906. It is rather mutilated, hence not readily determinable nor describable.

Madasumma (?) sp.

The collection made by Muir at Rewa in 1906 contains still another cricket that seems difficult to determine even as to its generic affinities. It is apparently a female, but has the subgenital plate enormously developed into an elongate scoop-like arrangement that is deeply and rather widely longitudinally canaliculate below. Above, and partly hidden by the upturned sides of the apparatus just described, seems to be a dark-colored ovipositor of about the same length as the plate. Its apex is blunt and quite robust.

No attempt will be made at this time to name or describe this insect.

Hemiphonus vittatus Saussure.

Hemiphonus vittatus Sauss., Mem. Soc. Geneve, XXV, p. 621, pl. 18 (LXVII), figs. 1-6 (1878); Kirby, Syn. Cat. Orth. II, p. 101 (1906).

Habitat.—Northern Australia and the Fiji Islands. Not now before me.

Anisotrypus furcatus Saussure.

Anisotrypus furcatus Sauss., Mem. Soc. Geneve, XXV, p. 632, pl. 17 (LVIII), figs. 1-4 (1878); Kirby, Syn. Cat. Orth. II, p. 102 (1906).

Habitat.—This is another species of gryllid that is confined to Fiji and not represented in the collections at hand.

Podoscritus insularis Saussure.

Podoscritus insularis Sauss., Mem. Soc. Geneve, XXV, p. 639 (1878); Kirby I. c. p. 104 (1906).

Habitat.—It would appear that some one in the past collected the gryllids of Fiji quite carefully. This species is also absent from the collections now studied.

Aphonomorphus vitiensis (Saussure).

Aphonus vitiensis Sauss., Mem. Soc. Geneve, XXV, p. 661, pl. 19 (LXXI), figs. 2, 2a (1878).

Aphonomorphus vitiensis Kirby, Syn. Cat. Orth. II, p. 105 (1906).

Habitat.—Fiji. Not contained in the material now being reported upon.

Aphonomorphus depressiusculus (Saussure) ?

Aphonus depressiusculus Sauss., Mem. Soc. Geneve, XXV, p. 662, pl. 19 (LXXI), figs. 1, 1a (1878).

Habitat.—A single female specimen in the collection of the College of Hawaii is referred to this species with some doubt. It is rather smaller than the measurements given by Saussure. It comes from Nadi, where it was taken during Aug. 1913.

DERMAPTERA.

Anisolabis maritima (Gene).

Forficula maritima Gene, Ann. Sci. Nat. Regn. Lomb. Venet. II, p. 224 (1832).

For the chief references to this insect see Kirby, Syn. Cat. Orth. I, p. 17 (1904).

Although a cosmopolitan insect, no Fiji specimens are contained in the material studied. A little collecting along the beach of any of the islands would certainly disclose it.

Anisolabis annulipes (Lucas).

Forficula annulipes Lucas, Bull. Soc. Ent. France (2) V, p. lxxxiv (1847).

For synonymy see Burr, Genera Ins. Fase. 122, p. 19 (1911).

There are no Fiji specimens of this cosmopolitan species in the collections examined, but there can be little doubt but that it occurs in the islands.

Labidura riparia (Pallas).

Forficula riparia Pallas, Reise Russ. Reichs. II, Anh. p. 727 (1773).

For the very extensive synonymy see Burr, Genera Ins. Fasc. 122, pp. 36-37.

This cosmopolitan earwig most assuredly occurs in the Fiji Islands, although no specimens are at hand from there.

Chelisoches morio (Fabricius).

Forficula morio Fabr., Syst. Ent. p. 270, No. 6 (1775).

For synonymy see Burr, Genera Ins. Fasc. 122, p. 65 (1911).

Habitat.—The present species occurs throughout the Oriental region. Specimens are at hand from Nadi. They were taken during the months June, July and August, 1913.

A careful search for Dermaptera over the various islands of the group will undoubtedly result not only in the discovery of the four here listed, but also of several additional forms.

**Review of the Autochthonous Genera of Hawaiian
Delphacidae.**

BY F. MUIR.

"A flood of light may be thrown on the theoretical problem of the origin of species by the study of the probable actual origin of species with which we may be familiar or of which the actual history or the actual ramifications may in some degree be traced."—*David S. Jordan*.

INTRODUCTORY.

During the latter half of January, 1915, I accepted an invitation to spend a couple of weeks with Mr. W. M. Gif-